



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/693,648  | 10/27/2003  | Masahide Nakamura    | Q77838              | 8911             |
| 23373   | 7590        | 09/15/2005           | EXAMINER            |                  |
| SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      | GLEITZ, RYAN M      |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2852                |                  |

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/693,648

Applicant(s)

NAKAMURA ET AL.

Examiner

Ryan Gleitz

Art Unit

2852

pm

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-4 is/are allowed.
- 6) ☒ Claim(s) 5-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments, see p. 8-10, filed 29 June 2005, with respect to the rejection(s) of claim(s) 5 and 8 under Rathbun have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Fukushima. Accordingly, this Office Action is made non-final.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rathbun (US 5,706,095) in view of Fukushima (US 6,115,561).

Rathbun discloses a latent image carrier (100) structured to carry a latent image on its surface; a liquid developer carrier (204) which transports, to a developing position facing the

Art Unit: 2852

latent image carrier (100), a liquid developer in which toner particles are dispersed in a carrier liquid and of which toner density is about 15 to 40 percent (col. 6, lines 3-5), which reads on 5 through 40 wt %.

Scanner (20) is an image forming means which makes the toner particles contained in the liquid developer supplied to the latent image carrier (100) from the liquid developer carrier (204) adhere to the latent image carrier, thereby visualizing the latent image and forming a toner image.

Charging device (111) is a transfer means which transfers the toner image on the latent image carrier (111) onto a transfer medium, intermediate belt (110) at a predetermined transfer position.

An optical sensor (206) including a light emitter which irradiates light upon a toner image formed as a patch image, and a light receiver which receives light from the patch image. See col. 9, lines 36-46.

The percentage solids is maintained at a selected level (col. 3, lines 14-24), which reads on a control means controlling an image forming condition which influences a toner image density based on a received-light signal from the light receiver.

Regarding claim 6, the angle of reflection is equal to the angle of incidence, col. 9, lines 36-40, which reads on regularly reflected.

Rathbun does disclose that the sensor irradiate light on a toner image transferred on the transfer medium.

However, Fukushima disclose a similar image density sensor system using only a single emitter and receiver using regularly reflected light that can be applied to a conveying belt, an

Art Unit: 2852

intermediate transfer member, a recording material or the like, and control may be performed by detecting the density of the formed pattern.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the image forming apparatus of Rathbun by moving the sensor to the transfer medium as taught by Fukushima to be an equivalent means for detecting patch image density. Additionally with regards to claim 9, performing the detection at the intermediate transfer member would require only one emitter and receiver, simplifying the construction of the apparatus.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rathbun (US 5,706,095) in view of Fukushima (US 6,115,561) as applied to claims 5, 6, 8, and 9 above, and further in view of Morrison et al. (JP 06-236078).

Rathbun and Fukushima disclose the image forming apparatus and method above, but is silent on the viscosity of the carrier liquid.

However, Morrison et al. disclose a liquid developed having a carrier liquid with a viscosity no larger than 500 centipoises (abstract, line 4), which reads on the range of 5 through 3000 mPa-s with sufficient specificity.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the carrier liquid of Rathburn with the viscosity taught by Morrison et al. to provide a liquid developer composition which obviates the generation of solvent vapor (abstract, lines 1-2).

Art Unit: 2852

***Allowable Subject Matter***

Claims 2-4 are allowed.

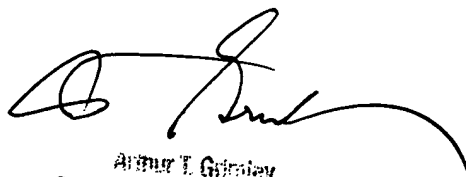
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Gleitz whose telephone number is (571) 272-2134. The examiner can normally be reached on Monday-Friday between 9:00AM and 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on (571) 272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RG

  
Arthur T. Grimley  
Supervisor and Examiner  
Technology Center 2800